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10/563,436	01/05/2006	Katsushige Amano	2005_1991A	4368

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EXAMINER	
BRYANT, DOUGLAS J.	
ART UNIT	PAPER NUMBER
2195	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/563,436	AMANO ET AL.	
	Examiner	Art Unit	
	DOUGLAS BRYANT	2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *16-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *16-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 January 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *01/05/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This is the initial Action based on the 10/563436 application filed on 01/05/2006.

2. Claims 16-35 are pending. Claims 1-15 are cancelled.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 16-35 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. The claim language in the following claim is clearly not understood:

i. As per claim 16, lines 4 and 8, it is not clearly understood if the signal handler and object signal handler are the same handler. If they are the same, the same name should be used. Line 7, it is not clearly understood what type of signal is being generated and what the signal is doing. Line 9, it is not clearly understood if the priority is from the signal handler register section or the signal generating section.

ii. As per claim 17, lines 1-4, it is not clearly understood if this is part of the signal registration section of claim 16. Lines 1-2, it is clearly not understood if the priorities being recorded with the plurality of tasks are the same as the priorities being recorded with the object signal handler.

iii. As per claim 17, line 10, it is uncertain whether "a signal handler" refers to "signal handler" in claim 16 or object handler in claim 17. If they

are the same, "the or said" should be used and the same name should be consistent through out the claims.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claim 35 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

7. Regarding claim 35, claim 35 is rejected because p. 7 lines 13-14 of the specification, states that the transmission medium "may be a wireless transmission medium". Consequently, the transmission medium can be reasonably interpreted as carrier waves, which constitutes as nonstatutory subject matter (see MPEP 2106 and *In re Nuitjen*, Docket no. 2006-1371 (Fed. Cir. Sept. 20, 2007)(slip. op. at 18)). Therefore, claims that recite nothing but the physical characteristics of a form of energy, such as a frequency, voltage, or the strength of a magnetic field, define as energy or magnetism *per se*, and as such as non-statutory natural phenomena are non-statutory sub matter (*O'Reilly v. Morse*, 56 U.S. (15 How.) 62, 112-14 (1853). Moreover, it does not appear that a claim reciting a carrier wave encoded with functional descriptive material falls within any of the categories of patentable subject matter set forth in §101.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 16-18, 23, 26, 29, 32-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rankin et al. (Rankin) US Patent Application 2003/0061423 A1 in view of Kling et al. (Kling) US Patent 6,662,203 B1.

10. As to claim 16, Rankin teaches a task scheduling apparatus for parallel processing a plurality of tasks assigned with priorities and including one or more tasks each having one or more signal handlers assigned with priorities, comprising:

a signal-handler registering section for registering the respective signal handlers of the one or more tasks, signals corresponding to the respective signal handlers and the priorities of the respective signal handlers while relating them to each other **(Para 27, lines 10-15; Fig 2; [Task Priority Table]).**

a signal generating section for generating a signal **(Para. 27, lines 16-18)**; and

11. Rankin is silent to the fact of a selection executing section for specifying an object signal handler as a signal handler corresponding to the generated signal and a priority thereof by referring to contents registered by the signal-handler registering section, and executing the one having a highest priority out of the plurality of tasks and the object signal handler.

12. However, Kling teaches a selection executing section for specifying an object signal handler as a signal handler corresponding to the generated signal and a priority thereof by referring to contents registered by the signal-handler registering section **(Col 2, lines 42-48)**, and executing the one having a highest priority out of the plurality of tasks and the object signal handler **(Col 3, lines 30-42)**.

13. It would have been obvious to one of an ordinary skill in the art at the time of the invention was made to combine the teachings of Kling with the teachings of Rankin to have a selection executing section **(scheduler)** refer to the task priority table to select the task with the highest priority preventing the delay of high priority tasks. This modification would efficiently utilize the parallel execution capacity of the system.

14. As to claim 17, Rankin teaches a task scheduling apparatus according to claim 16, further comprising a priority table for recording the plurality of tasks and the priorities thereof while relating them to each other and recording the object signal handler and the priority thereof while relating them to each other, wherein the selection executing section includes:

a signal notifying section for specifying the object signal handler **(Para. 27, lines 13-15)** and the priority thereof by referring to the contents registered by the signal-handler registering section, and recording the object signal handler and the priority thereof in the priority table while relating them to each other **(Para. 27, lines 10-13);**

Kling teaches a selecting section for selecting a task or a signal handler corresponding to the highest one of a plurality of priorities recorded in the priority table as an object to be executed by referring to the priority table section **(Kling, Col 2, lines 42-48)**; and an executing section **(processing core)** for executing the task or the signal handler selected by the selecting section **(Kling, Col 3, lines 30-42).**

15. As per claim 18, Kling teaches a task scheduling apparatus according to claim 17, wherein the signal notifying section deletes the recorded content relating to the signal handler whose execution has been completed from the priority table when the executing section completes the execution of the signal handler **(Col 7, line 46-48)**.

16. As to claim 23, Rankin teaches a task scheduling apparatus according to claim 17, further comprising a task registering section for registering the priorities of the one or more tasks in the priority table upon a registration instruction from the one or more tasks **(Para 25, lines 20-24; interrupt controller comprises task priority table)**.

17. As per claim 26, Rankin teaches a task scheduling apparatus according to claim 23, wherein the task registering section changes the priorities of the one or more tasks registered in the priority table upon a change instruction from the one or more tasks **(Para 28, lines 5-9)**.

18. As per claim 29, Kling teaches a task scheduling apparatus according to claim 26, further comprising:

a buffer for temporarily storing data outputted from a specific task which is one of the one or more tasks **(Col 6, lines 20-22)**, and

a buffer administering section for making a notification to the signal generating section when an amount of the data stored in the buffer falls below a predetermined reference amount **(Col 7, lines 61-65)**,

Takeuchi teaches wherein the specific task includes a specific signal handler for causing the task registering section to change the priority of the specific task registered in the priority table to a higher value by giving an instruction to the task registering section **(Col 6-7, lines 66-4)**,

Rankin teaches the signal generating section generates a signal corresponding to the specific signal handler upon receiving the notification **(Para 27, lines 10-15; Fig 2; [Task Priority Table])**.

19. As per claim 32, Rankin teaches a task scheduling apparatus according to claim 16, further comprising a signal-handler table in which the signal-handler registering section registers the respective signal handlers of the one or more tasks, the signals corresponding to the respective signal handlers and the priorities of the respective signal handlers while relating them to each other **(Para 27, lines 10-15; Fig 2. Task Priority Table)**, wherein the selection executing section **(processing core)** refers to the signal-handler table as the contents registered by the signal-handler registering section **(Kling, Col 3, lines 30-42)**.

20. As to claims 33-35, claims 33-35 are rejected on the same rationale as claim 1.

21. Claims 19-22, 24-25, 27-28, and 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rankin et al. (Rankin) US Patent Application 2003/0061423 A1 in view of Kling et al. (Kling) US Patent 6,662,203 B1, and further in view of Takeuchi et al. (Takeuchi) US Patent 5,944,778.

22. As per claim 19, Rankin teaches a task scheduling apparatus according to claim 16, further comprising a priority table for recording the plurality of tasks and the priorities thereof while relating them to each other, wherein:

the signal-handler registering section further registers tasks corresponding to the respective signal handlers while relating them to each other **(Para 27, lines 10-15; Fig 2. Task Priority Table)**; and the selection executing section includes:

a signal notifying section for specifying the object signal handler, an object priority which is the priority of the object signal handler **(Para. 27, lines 13-15)**, and an object task which is a task corresponding to the object signal handler by referring to the contents registered by the signal-handler registering section **(Para. 27, lines 10-13)**.

23. Kling teaches a selecting section for selecting a task corresponding to the highest one of a plurality of priorities recorded in the priority table as an object to be executed by referring to the priority table **(Kling, Col 2, lines 42-48)**, and an executing section for executing the selected task if the task selected by the selecting section is not the object task while executing the object signal handler if the selected task is the object task **(Kling, Col 3, lines 30-42)**.

24. Rankin and Kling are both silent to teaching a priority changing section for changing the priority of the object task out of the plurality of tasks recorded in the priority table to the object priority.

25. However, Takeuchi teaches a priority changing section for changing the priority of the object task out of the plurality of tasks recorded in the priority table to the object priority **(Col 4, lines 54-67)**.

26. It would have been obvious to one of an ordinary skill in the art at the time of the invention was made to combine the teachings of Takeuchi with the teachings of Rankin and Kling to have a priority changing section to change the priority of the object task in the priority table to ensured that the task with the highest priority is executed on scheduled preventing a processing delay.

27. As to claim 20, Takeuchi teaches a task scheduling apparatus according to claim 19, wherein the priority changing section resets the priority of the object task corresponding to the object signal handler whose execution has been completed, out of the plurality of tasks recorded in the priority table, to the one before it had been changed to the object priority when the executing section completes the execution of the object signal handler **(Col 7, lines 35-50)**.

28. As to claim 21, Rankin teaches a task scheduling apparatus according to claim 16, further comprising a priority table for recording the plurality of tasks and the priorities thereof while relating them to each other, wherein:

the plurality of tasks include a signal-handler processing task which is assigned with a variable priority **(Enable)**, includes a queue in which at least one signal handler to be executed is registered, and causes executed a highest priority handler having a highest priority out of the at least one signal handler registered in the queue upon being called and executed **(Para 27, lines 10-15; Fig 2; [Task Priority Table])**; the selection executing section includes: a signal notifying section for specifying the object signal handler by referring to contents registered by the signal-handler registering section**(Para. 27, lines 13-15)** and registering the object signal handler in the queue **(Para. 27, lines 10-13).**

Takeuchi teaches a priority changing section for specifying the highest priority handler out of the at least one signal handler registered in the queue by referring to the contents registered by the signal-handler registering section when the content registered in the queue has been changed **(Para 27, lines 10-15; Fig 2. Task Priority Table)** and changing the priority of the signal-handler processing task recorded in the priority table to the priority of the specified highest priority handler **(Col 4, lines 54-67)**.

Kling teaches a selecting section for selecting the task corresponding to the highest one of a plurality of priorities recorded in the priority table as an object to be executed by referring to the priority table **(Col 2, lines 42-48)**, and an executing section for executing the task selected by the selecting section**(Kling, Col 3, lines 30-42)**.

29. As to claim 22, Kling teaches a task scheduling apparatus according to claim 21, wherein the signal-handler processing task deletes the registration of the highest priority handler whose execution has been completed from the queue when the execution of the highest priority handler is completed **(Col 7, line 46-48)**.

30. As to claim 24, Rankin teaches a task scheduling apparatus according to claim 19, further comprising a task registering section for registering the priorities of the one or more tasks in the priority table upon a registration instruction from the one or more tasks **(Para 25, lines 20-24; interrupt controller comprises task priority table)**.

31. As to claim 25, Rankin teaches a task scheduling apparatus according to claim 21, further comprising a task registering section for registering the priorities of the one or more tasks in the priority table upon a registration instruction from the one or more tasks **(Para 25, lines 20-24; interrupt controller comprises task priority table)**.

32. As to claim 27, Rankin teaches a task scheduling apparatus according to claim 24, wherein the task registering section changes the priorities of the one or more tasks registered in the priority table upon a change instruction from the one or more tasks **(Para 28, lines 5-9)**.

33. As to claim 28, Rankin teaches a task scheduling apparatus according to claim 25, wherein the task registering section changes the priorities of the one or more tasks

registered in the priority table upon a change instruction from the one or more tasks **(Para 28, lines 5-9)**.

34. As to claim 30, A task scheduling apparatus according to claim 27, further comprising:

a buffer for temporarily storing data outputted from a specific task which is one of the one or more tasks **(Col 6, lines 20-22)**, and

a buffer administering section for making a notification to the signal generating section when an amount of the data stored in the buffer falls below a predetermined reference amount **(Col 7, lines 61-65)**,

Takeuchi teaches wherein the specific task includes a specific signal handler for causing the task registering section to change the priority of the specific task registered in the priority table to a higher value by giving an instruction to the task registering section **(Col 6-7, lines 66-4)**,

Rankin teaches the signal generating section generates a signal corresponding to the specific signal handler upon receiving the notification **(Para 27, lines 10-15; Fig 2; [Task Priority Table]).**

35. As to claim 31, Kling teaches a task scheduling apparatus according to claim 28, further comprising: a buffer for temporarily storing data outputted from a specific task which is one of the one or more tasks **(Col 6, lines 20-22)**, and a buffer administering section for making a notification to the signal generating section when an amount of the

data stored in the buffer falls below a predetermined reference amount **(Col 7, lines 61-65)**.

Takeuchi teaches wherein the specific task includes a specific signal handler for causing the task registering section to change the priority of the specific task registered in the priority table to a higher value by giving an instruction to the task registering section **(Col 6-7, lines 66-4)**.

Rankin teaches the signal generating section generates a signal corresponding to the specific signal handler upon receiving the notification **(Para 27, lines 10-15; Fig 2; [Task Priority Table])**.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DOUGLAS BRYANT whose telephone number is (571)270-7707. The examiner can normally be reached on M-F 8:00-5:00pm Est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, An Meng-ai can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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